

Remarks

Claims 1-20 remain pending in the present application, of which claims 8, 10, 18 and 20 have withdrawn from consideration. Allowable claims 3 and 13 have been rewritten in independent form. It is respectfully submitted that the pending claims define allowable subject matter.

Initially, with respect to the objection to the drawings, the undersigned continues to maintain that Figure 1 correctly shows every claimed feature of claim 1. Claim 1 recites the first and second contact elements as “configured to be joined in an electrically common manner.” As previously explained, Figure 1 illustrates base portions 18 and 19 with solder ball paddles 22 and 23. Paragraph 20 of the present application clearly explains that the base portions 18 and 19 are soldered to a common pad or electrically joined traces on a circuit board which would necessarily join the contact elements in an electrically common manner. It is submitted that Figure 1 need not necessarily illustrate the common pad or traces on a circuit board to which the contacts elements are soldered to fully and sufficiently illustrate the claimed limitations. Claim 1 is does not positively reciting a circuit board or a common trace, but instead defines the structure of the contact elements to be “configured” to be joined in an electrically common manner.

Claims 1, 4, 11 and 14 have been rejected under 35 USC § 102(b) as being anticipated by Hughes et al (130). Claims 2, 5-7, 9, 12, 15-17 and 19 have been rejected under 35 USC § 103 as being unpatentable over Hughes et al in view of Yeh and Siedler. Applicants respectfully traverse these rejections for reasons set forth hereafter.

It is submitted that Hughes does not teach or suggest first and second contact elements having first and second contact beams, respectively, that are oriented to project toward one another in an overlapping pattern. The contact of Hughes includes a first connection section 22, a second connection section 24 and third connection section 26. The connection section 24 comprises a contact portion 48 having an arcuate contact protrusion 50. Connection section 26 comprises a contact portion 60 with a contact protrusion 62. The contact portions 48 and 60 do

not constitute the claimed contact beams, nor do the contact portions 48 and 60 project toward one another in an overlapping pattern. Instead, it is submitted that the second and third connection sections 24 and 26 of Hughes in fact teach away from the claimed invention as sections 24 and 26 extend away from one another, not toward one another toward an overlapping pattern.

Moreover, Hughes fails to teach or suggest the claimed contact elements, base portions and contact beams. Claims 1 and 11 clearly define the first and second contact elements to have first and second base portions that are joined to corresponding first and second contact beams, respectively. The first and second base portions are spaced apart from one another and the first and second beams extend from the spaced apart first and second base portions and project toward one another in an overlapping pattern. Hughes teaches no such structure. In Hughes, the terminal 6 represents, at most, a single contact element, not first and second contact elements. In Hughes, the terminal 6 has a single mounting portion 30 to which connection sections 24 and 26 are joined. Connection sections 24 and 26 do not include base portions that are spaced apart from one another, but instead extend upward from a single mounting portion 30.

Further, Hughes fails to teach or suggest the contact elements of claims 4 and 14. Claims 4 and 14 define the first contact element to include a first pair of contact beams that are oriented in parallel planes and the second contact element to include a second pair of contact beams oriented in parallel planes, with the first and second pairs of contact beams projecting toward one another. Claims 4 and 14 depend from claims 1 and 11, respectively, which clearly define the first and second contact elements to be configured to be joined in an electrically common manner. In Hughes, the second and third connection sections 24 and 26 do not include first and second pairs of contact beams. Nor do the second and third connection sections 24 and 26 include first and second pairs of contact beams that are oriented in the parallel planes. Instead, the second connection section 24 includes a single contact portion 48, while the third connection section 26 includes a single contact portion 60, with the contact portions 48 and 60 extending away from one another.

Turning to the obviousness rejections, it is submitted that the person of ordinary skill would not have been motivated to modify the contact of Hughes in a manner that would render obvious the claimed invention. Claims 2 and 12 define the first and second contact elements as each having base portions that are formed separate from one another and are configured to be joined to a common conductive pass on a circuit. The secondary reference to Yeh would not have motivate the person of ordinary skill to modify Hughes' contact to remove the first connection section 22 and further modify the second and third sections 24 and 26 to be joined to a common conductive path on a circuit board. Yeh describes a connector 100 that includes an insulated base 1 and first and second sets of contacts 2 and 3. The first set of contacts 2 includes a plurality of individual contacts, each of which has a first spring contact portion 21, a first solder tail 22 and an U-shaped first mounting portion 23. Each of the contacts within the second set of contacts 3 includes a second contact portion 31, a second solder tail 32 and an U-shaped second mounting portion 33. Each individual contact within the first set of contacts 2 and within the second set of contacts 3 is a single stand alone contact. As understood by the undersigned, Yeh nowhere suggests that multiple contacts within the set of contacts 2 may be joined to a common conductive path on a circuit board. As understood by the undersigned, Yeh nowhere explains that any two of the contacts within the second set of contacts 3 may be joined to a common conductive path on a circuit board. Therefore, it is respectfully submitted that a prima facia case of obviousness has not been set forth because Yeh does not teach or suggest any advantage or desire to join in a common conductive first and second contact elements having the claimed structure.

Regarding claims 7 and 17, it is submitted that the prior art does not teach any reason or advantage for aligning contact beams to be oriented to convey current along first and second paths that are aligned in substantially parallel vertical planes. Yeh is cited with respect to the features of claims 7 and 17. Yet Yeh is silent with respect to the current path conveyed through the first and second sets of contacts 2 and 3. Moreover, as explained above, as is understood, every individual contact within the first and second sets of contacts 2 and 3 within Yeh are separate and stand alone signal contacts. Thus, there would be no reason or advantage to convey

current in the claim manner through any two of the contacts within the first and second sets of contacts 2 and 3 within Yeh. Each contact within Yeh, conveys an independent signal, whereas the claimed first and second contact beams are configured to be joined in an electronically common manner which yields certain advantages as explained in connection with the present application when the beams are oriented to convey current along first and second paths that are aligned in substantially parallel vertical planes.

Instead, it is submitted that the Outstanding Office Action has failed to set forth a *prima facia* case of obviousness. The person of ordinary would not have been motivated to modify Hughes terminal 6 based on the teachings Yeh to provide a plurality of independent contacts as used by Yeh. The primary and most fundamental objective of Hughes connector is provide a terminal 6 that interconnects a device, such as a battery pack, to at least two stacked printed circuit boards (see the summary of the invention). The terminal 6 of Hughes was designed with the intention of overcoming, among other things, the following problem within the prior art:

In an electronic device comprising a plurality of printed circuit boards mounted in a stacked relationship, it is typical to provide a connector mounted on one of the boards, for example by soldering, and having compliant contact portions or even solder portions for connection to a second circuit board mounted in a stacked relationship with respect to the first board, for example as shown in U.S. Pat. 5,378,160. It is typical to provide such inter-board connectors with terminals that transfer signal and electrical power between the boards. A battery pack or other power source is thus connected one of the boards, and circuit traces on that board interconnect the power supplied to the first board, to an electrical contact that interconnects the boards. (column 1, lines 18-32).

From the foregoing, it is submitted that Hughes expressly teaches away from the use of separate contacts as taught by Yeh. Instead, Hughes offers a single terminal 6 having a single mounting portion 30, from which connection sections 24 and 26 extend. The mounting tab 36 is intended to be soldered to one board, while the protrusion 50 is intended to join a battery pack and the protrusion 62 is intended to join a second stacked circuit board. The modification of Hughes proposed in the Outstanding Office Action would directly contradict and prevent Hughes

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from achieving the stated objective. Thus, the person of ordinary skill would not have been motivated to modify Hughes in the suggested manner.

In view of the foregoing, it is respectfully submitted that the pending claims define allowable subject matter. Should anything remain in order to place the present application in condition for allowance, the examiner is kindly invited to contact the undersigned at the telephone number listed below.

Respectfully Submitted,



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